

Amendments to the Claims:

1-25. (Canceled)

26. (Withdrawn) A teat cup for stimulating discharge of milk from an animal's teat in a milking stage of a milking operation, comprising:

- (a) a flexible liner for engaging about a teat of an animal to be milked;
- (b) a head portion at one end of said flexible liner having a mouth through which said teat is engageable with said flexible liner;
- (c) a milk discharge passageway at an opposite end of said flexible liner; and
- (d) post-milking flushing means for discharging treatment fluid into said head portion of said flexible liner upon termination of the milking stage;
- (e) said post milking flushing means comprising at least one nozzle arranged to discharge treatment fluid into said head portion of said flexible liner, wherein said at least one nozzle is arranged to discharge treatment fluid in a direction towards said discharge passageway of said flexible liner.

27. (Withdrawn) A teat cup as claimed in claim 26, wherein said head portion of said flexible liner has an internal annular cavity which, when the teat cup is engaged with the animal's teat, forms a void between said teat and said head portion, and wherein said at least one nozzle is arranged to discharge treatment fluid into said cavity in said head portion.

28. (Canceled)

29. (Withdrawn) A teat cup as claimed in claim 26, including a non-return valve connected to said at least one nozzle and via which treatment fluid is supplied to said at least one nozzle.

30. (Withdrawn) A teat cup as claimed in claim 26, including a shut-off valve connected to said discharge passageway of the teat cup for shutting off treatment fluid flow from the teat cup into a milk tube downstream of said teat cup.

31. (Withdrawn) A teat cup as claimed in claim 30, wherein said shut-off valve comprises a valve body having a milk passageway connected to said flexible liner, a valve chamber in said valve body connected to said milk passageway via an opening in a wall of the said milk passageway, a valve member in the form of a flexible membrane disposed in sealing relation between said chamber and said opening, and means for connecting said chamber to a source of fluid pressure, whereby application of fluid pressure to said chamber extends and/or expands said membrane through said opening into said milk passageway so that it seals said milk passageway and shuts off treatment fluid flow therethrough.

32. (Withdrawn) A teat cup as claimed in claim 31, wherein said membrane valve member has a cap-like shape which, in the unactuated position of said valve member, projects into said valve chamber with a cavity in said cap facing said milk passageway, whereby application of fluid pressure to said chamber turns said cap valve member inside out so as to project across said milk passageway in sealing relation with walls of said milk passageway.

33. (Withdrawn) A teat cup as claimed in claim 31, wherein said valve chamber is connectable to a source of vacuum upon removal of the fluid pressure from said valve chamber, whereby to return said membrane to its unactuated position within said valve chamber.

34. (Withdrawn) A teat cup as claimed in claim 30, including a drain port on the upstream side of said shut-off valve for enabling trapped treatment fluid to drain from said flexible liner in the event of the teat cup being held in a position in which said head portion of said flexible liner is uppermost, said drain port being controlled by a non-return valve.

35. (Withdrawn) A teat cup as claimed in claim 34, wherein said non-return valve is a flap valve.

36. (Withdrawn) A teat cup as claimed in claim 26, wherein said at least one nozzle comprises a single nozzle.

37. (Withdrawn) A teat cup as claimed in claim 26, including a delivery tube connected to said at least one nozzle for supplying treatment fluid thereto, said delivery tube being attached to or integral with the teat cup.

38. (Withdrawn) A milking cluster comprising a plurality of teat cups as claimed in claim 26, a plurality of short milk tubes respectively connecting said discharge passageways of said teat cups to a clawpiece which collects milk discharged from said teat cups preparatory to onward delivery.

39. (Currently Amended) Milking equipment comprising:-

(a) at least one milking cluster including a plurality of teat cups;

(b) each of said teat cups comprising a flexible liner for engaging about a teat of an animal to be milked, said liner having a head portion at one end provided with a mouth through which said teat is engagable with said flexible liner, and a milk discharge passageway at the opposite end thereof;

(c) post-milking flushing means for discharging treatment fluid into said head portion of said flexible liner upon termination of a milking stage;

(d) said post-milking flushing means comprising at least one nozzle within said head portion of said flexible liner and arranged to discharge treatment fluid into said head portion of said flexible liner, wherein said at least one nozzle of each said teat cup is configured ~~arranged~~ to discharge direct treatment fluid ~~in a direction~~ towards said discharge passageway of the associated flexible liner;

(e) a plurality of short milk tubes respectively connecting said discharge passageways of said teat cups to a clawpiece which collects milk discharged from said teat cups for onward delivery;

(f) a cluster remover for effecting take-off of said milking cluster from said animal's teats; and

(g) control means for initiating supply of treatment fluid to said at least one nozzle of each of said teat cups upon take-off so that withdrawal of said teat cups wipes causes said teat cups to wipe said treatment fluid down said teats.

40. (Canceled)

41. (Previously Presented) Milking equipment as claimed in claim 39, including a non-return valve connected to said at least one nozzle and via which treatment fluid is supplied to said at least one nozzle.

42. (Previously Presented) Milking equipment as claimed in claim 39, wherein said at least one nozzle of each said teat cup comprises a single nozzle directed into an internal annular cavity within said head portion of the associated flexible liner.

43. (Previously Presented) Milking equipment as claimed in claim 39, including a shut-off valve connected to said discharge passageway of each said teat cup for shutting off treatment fluid flow from said teat cup to said claw piece.

44. (Previously Presented) Milking equipment as claimed in claim 43, including a drain port on the upstream side of each said shut-off valve for enabling trapped treatment fluid to drain from the associated flexible liner in the event of said teat cup being held in a position in which said head portion of said flexible liner is uppermost, said drain port being controlled by a non-return valve.

45. (Currently Amended) A milking method comprising the steps of :-

- (a) applying a teat cup to a teat of an animal to be milked, said teat cup including a flexible liner engaging about said teat, said flexible liner having a head portion, at one end, provided with a mouth through which the teat is engaged with the liner, and a milk discharge passageway at the opposite end thereof;
- (b) activating said teat cup to perform a milking operation;
- (c) when the milking operation is terminated, discharging treatment fluid into said head portion of said flexible liner and withdrawing said teat cup from said teat;
- (d) said treatment fluid being discharged into said head portion of ~~the teat cup~~ said flexible liner and on to said teat as said teat cup is withdrawn;
- (e) utilising withdrawal of said teat cup to cause said teat cup to wipe the treatment fluid down the teat; and
- (f) allowing said teat cup to fall into an inverted position, after take-off from the teat, with said head portion of said flexible liner being directed downwardly, and flushing the interior of said flexible liner with further treatment fluid, ~~washing and/or drying fluid being~~ discharged upwardly into said flexible liner from within said head portion.

46. (Previously Presented) A method as claimed in claim 45, further comprising the step of detecting when milking is to be terminated and, in response to said detecting step, initiating take-off of said teat cup from the teat and discharging treatment fluid into said head portion of said flexible liner and onto said teat, such that withdrawal of said teat cup from the teat upon take-off substantially coats the teat with said treatment fluid.

47. (Previously Presented) A method as claimed in claim 45, wherein said treatment fluid is discharged into a void formed between the teat and said head portion of said flexible liner.

48. (Currently Amended) A method as claimed in claim 45, wherein the discharge of treatment fluid into said head portion of said flexible ~~line~~ liner is controlled by a non-return valve.

49. (Canceled)

50. (Previously Presented) A method as claimed in claim 45, further comprising the step of shutting off said discharge passageway of said flexible liner upon take-off of said teat cup so as to prohibit treatment fluid from contaminating harvested milk.

51. (Previously Presented) A method as claimed in claim 45, further comprising the step of applying a pulse of compressed air to the interior of said head portion of said flexible liner, subsequently to the discharge of treatment fluid thereinto, so as to facilitate removal of said teat cup from the teat.

52. (Withdrawn) A teat dip applicator, comprising:

a teat dip conduit;

a liner head defining a liner head chamber that is in fluid communication with the teat dip conduit, the liner head further defining an opening through which fluid from the liner head chamber can flow and be applied to an upper portion of an animal teat; and

a nozzle in fluid communication with the teat dip conduit to restrict milk from flowing into the teat dip conduit.

53. (Withdrawn) The teat dip applicator of claim 52, and further comprising:
a controller for controlling the flow of teat dip through the teat dip conduit.

54. (Withdrawn) The teat dip applicator of claim 53, and further comprising:
a manifold for directing teat dip to the teat dip conduit.

55. (Withdrawn) The teat dip applicator of claim 52, and further comprising:
a backflush valve to prevent the flow of backflushing fluid into a milk line.

56. (Withdrawn) The teat dip applicator of claim 52, wherein teat dip is applied simultaneously with detachment of the liner from an animal teat.

57. (Withdrawn) The teat dip applicator of claim 52, wherein the liner head is adapted to be in wiping engagement with an animal teat.

58. (Withdrawn) A teat dip applicator, comprising:

a teat dip conduit;

a liner head defining a liner head chamber that is in fluid communication with the teat dip conduit, the liner head further defining an opening through which fluid from the liner head chamber can flow and be applied to an upper portion of an animal teat; and

a backflush valve to backflush a milker unit.

59. (Withdrawn) The teat dip applicator of claim 58, and further comprising:

a controller for controlling the flow of teat dip through the teat dip conduit.

60. (Withdrawn) The teat dip applicator of claim 58, and further comprising:

a manifold for directing teat dip to the teat dip conduit.

61. (Withdrawn) The teat dip applicator of claim 58, and further comprising:

a nozzle joined to the teat dip conduit to restrict milk from flowing into the teat dip conduit.

62. (Withdrawn) The teat dip applicator of claim 58, wherein teat dip is applied

simultaneously with detachment of the liner from an animal teat.

63 (Withdrawn) The teat dip applicator of claim 58, wherein the liner head is adapted to

be in wiping engagement with an animal teat.

64. (New) A method as claimed in claim 45, wherein said treatment fluid includes

washing fluid.

Appl. No.: 10/576,744
Amdt. dated 12/02/2010
Reply to Office action of 09/02/2010

65. (New) A method as claimed in claim 45, wherein said treatment fluid includes washing and drying fluid.